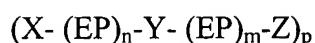


## CLAIMS

1) A molecule binding to a target comprising an EP motif having the following sequence:



wherein X, Y and Z may be identical or different and comprise a sequence of 0 to 10 amino acids, identical or different, n and m are integers between 0 to 20, preferably between 3 to 10, with at least one of n or m being different from 0, and p is an integer between 1 and 10.

2) The molecule according to claim 1, which binds to an EP motif selected from the group consisting of EPEPEPEPEPEPEPEPEP (SEQ ID N° 3), EPEPEPQLEPEP (SEQ ID N° 4), EPQDEPPEPQLELQVEPEPELEQ (SEQ ID N° 5), and EPEPEPEPEPEPEP (SEQ ID N° 6).

3) The molecule according to claim 1, which binds to an amino acid sequence comprising at least 5 EP motifs over a 19 amino acid segment.

4) The molecule according to claim 1, wherein the molecule is selected from the group consisting of a peptide, a polypeptide or a protein.

5) The polypeptide according to claim 4, comprising the amino acid sequence of LAP identified by SEQ ID No.:1, a homolog, a fragment or a derivative thereof.

6) The polypeptide according to claim 4, comprising the carboxy-terminal amino acid sequence of LAP identified by SEQ ID No.:2, a homolog, a fragment or a derivative thereof.

7) A nucleic acid molecule comprising a polynucleotide sequence coding a polypeptide according to claim 4.

8) The nucleic acid molecule according to claim 7, comprising the polynucleotide sequence identified by SEQ ID No.:8, a fragment or a derivative thereof.

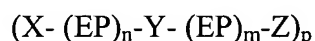
9) An expression vector comprising a nucleic acid molecule according to claim 7.

10) An expression vector comprising a nucleic acid molecule according to claim 8.

11) A host cell transformed with an expression vector according to claim 9.

12) A host cell transformed with an expression vector according to claim 10.

13) A process for manufacturing a molecule binding to a target comprising an EP motif having the following sequence:



wherein X, Y and Z may be identical or different and comprise a sequence of 0 to 10 amino acids, identical or different, n and m are integers between 0 to 20, preferably between 3 to 10, with at least one of n or m being different from 0, and p is an integer between 1 and 10, comprising:

a) transfection of a host cell with an expression vector according to claim 5 to obtain expression of the polypeptide, and

b) isolation and purification of the polypeptide from the transfected host cell.

14) A pharmaceutical composition comprising as active agent at least one molecule according to claim 1.

15) The pharmaceutical composition according to claim 14, wherein said molecule is a LAP agonist.

16) The pharmaceutical composition according to claim 14, wherein said molecule is a LAP antagonist.

17) A method of treating immune-related pathologies comprising administering a therapeutically effective amount of a molecule according to claim 1 to a patient in need thereof.

18) A method of treating the immune response comprising administering a therapeutically effective amount of a molecule according to claim 1 to a patient in need thereof.

19) A method of enhancing the development of CD4 or CD8 T-cell populations comprising administering a therapeutically effective amount of a molecule according to claim 1 to a patient in need thereof.

20) A method of suppressing the development of CD4 or CD8 T-cell populations comprising administering a therapeutically effective amount of a molecule according to claim 1 to a patient in need thereof.

21) The method according to claim 7, wherein said molecule is a LAP agonist.

- 22) The method according to claim 7, wherein said molecule is a LAP antagonist
- 23) A method for screening drugs comprising:  
contacting a candidate drug with a molecule according to claim 1 in the presence of a target EP motif, and  
measuring resulting binding of the molecule to the target.
- 24) The method according to claim 23, wherein the drugs are selected from the group consisting of drugs able to activate T-cell, drugs enhancing development of CD4 or CD8 T-cell populations, drugs suppressing development of CD4 or CD8 T-cell populations and drugs active in platelet activation.
- 25) The method according to claim 23, wherein the molecule is a LAP polypeptide.
- 26) Antibodies directed to a specific epitope of a polypeptide selected from the group consisting of polypeptides or peptides identified by SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:9.
- 27) The antibodies according to claim 26, wherein the antibodies are monoclonal antibodies or Fab, Fab', F(ab') or Fv fragments thereof.

28) A monoclonal antibody or a monoclonal antibody derivative that specifically binds a peptide selected from the group consisting of polypeptides or peptides identified by SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6 and SEQ ID NO:9, the monoclonal antibody derivative being selected from the group consisting of a monoclonal antibody conjugated to a cytotoxic agent or a radioisotope, and Fab, Fab' or F(ab')<sub>2</sub> fragments of said monoclonal antibody conjugated to a cytotoxic agent or radioisotope.

29) A hybridoma cell line producing the monoclonal antibody of claim 28.

30) A therapeutic composition comprising as an active ingredient an antibody according to claim 26.